

Promoting Green Electricity through Differentiated Electricity Tax Schemes

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A Introduction

The increased attention given to climate change on the international agenda has led governments around the world to resort to a wide set of policy instruments aimed at promoting the use of renewable energy (RE) sources. In particular, many governments have introduced measures to promote the use of electricity produced from renewable sources (green electricity).¹ Specific regulatory instruments aimed at supporting green electricity have been put in place for two main reasons. First, the electricity sector is both the largest single source of energy-related greenhouse gas (GHG) emissions and the sector carrying the biggest potential for emissions abatement.² Second, in many cases green electricity remains unable to compete with conventional electricity produced by fossil fuel-fired and nuclear power plants, owing to fundamental differences in cost structures and operating costs and characteristics.³

¹ In this chapter, the term 'green electricity' is used to designate electricity generated from renewable types of energy. 'Grey electricity' means electricity generated from fossil fuels. Electricity generated from nuclear power does not fall within the meaning of either of the terms and will be dealt with separately.

² The energy sector is currently responsible for two thirds of total greenhouse gas (GHG) emissions and fossil fuels still account for the greatest share of global power generation. International Energy Agency (IEA), *Redrawing the Energy Climate Map: World Energy Outlook Special Report* (2013), www.iea.org/publications/freepublications/publication/WEO_Special_Report_2013_Redrawing_the_Energy_Climate_Map.pdf (accessed 9 April 2015), pp. 15–32.

³ Green electricity is characterised by high capital investment costs and cannot rely on economies of scale, contrary to conventional electricity. In *Canada – FIT Program*, the WTO Appellate Body (AB) noted that because of these supply-side factors, green electricity markets can only be created through government regulation. See AB Report, *Canada – Measures Relating to the Feed-in Tariff Program (Canada – FIT Program)*, 6 May 2013, WT/DS426/AB/R, para. 5.175.

In the attempt to reduce the competitiveness 'gap' between green electricity and conventional sources, governments of both developed and developing countries have adopted RE support measures that lower the cost, raise the price and stimulate purchases of green electricity.⁴ Along with market-based instruments aimed at incentivising investment in low-carbon technologies, states have invested heavily in the promotion of RE development through various forms of subsidies. These measures, however, have proven quite costly, and their compatibility with the World Trade Organization (WTO) under the Agreement on Subsidies and Countervailing Measures (ASCM) is often uncertain.

This chapter aims to promote an alternative approach based on taxing electricity at different rates depending on energy sources or its carbon footprint. Such an approach could facilitate the transition from direct subsidisation of RE to a more efficient steering system, which is less burdensome for public accounts.⁵ Taxing electricity at higher rates if it is produced from fossil fuel and applying lower tax rates or granting exemptions to green electricity can create appropriate incentives for RE production without burdening public resources. Moreover, the revenues derived from the implementation of a differentiated electricity tax could also be used to support RE.⁶

B Rationale for a Differentiated Electricity Tax

I Taxing Electricity for the Promotion of Renewable Energy

In recent years, the set of governmental measures introduced to promote RE development and, in particular, the use of electricity produced from

⁴ According to recent statistics, developing countries have surpassed developed countries with regard to the amount of financial investment in renewable energy sources. A. Ghosh and H. Gangania, *Governing Clean Energy Subsidies: What, Why, and How Legal?* (Geneva: ICTSD, 2012), p. 2, www.ictsd.org/downloads/2012/09/governing-clean-energy-subsidies-what-why-and-how-legal.pdf (accessed 9 April 2015).

⁵ The idea of privileging fiscal measures on a differentiated basis rather than providing direct support schemes for the promotion of RE electricity development is on the rise in countries such as Switzerland. See *Botschaft zum ersten Massnahmenpaket der Energiestrategie 2050 (Revision des Energierichts) und zur Volksinitiative 'Für den geordneten Ausstieg aus der Atomenergie (Atomausstiegsinitiative)'*, 4 September 2013, BBL 2013 7561, 7574–5.

⁶ *Ibid.*

renewable sources has sharply increased. These measures generally aim at lowering the cost of green electricity, thus stimulating purchases by final consumers, or raising the price paid to producers.⁷

To promote green electricity, governments use both market and command-and-control measures. The former can either be price- or quota-based mechanisms. Many countries have, for example, introduced so-called RE quota obligations (ROs), that is, domestic schemes requiring energy generators, suppliers or consumers to include a given percentage of energy from renewable sources in their production, supply or consumption.⁸ ROs help achieve national targets for the share of energy from renewable sources.⁹ They are usually fulfilled with the help of renewable energy certificates (RECs), including 'green certificates' used in the European Union (EU) countries.¹⁰

As to the price-based instruments, the EU and a number of non-EU countries have introduced emissions trading schemes (ETSs) based on the cap-and-trade principle.¹¹ Under such schemes, a 'cap' is imposed on the total amount of CO₂ and/or other GHG emissions¹² that can be emitted each year by the power plants, factories and other companies covered by the system, and it is gradually reduced every year. Under this

⁷ For an overview of the policy instruments implemented by both developed and developing countries for RE development since the 1970s, see World Bank, 'Design and performance of policy instruments to promote the development of renewable energy: emerging experience in selected developing countries', *Energy and Mining Sector Board Discussion Paper No. 22* (2011), <http://siteresources.worldbank.org/EXTENERGY2/Resources/DiscPaper22.pdf> (accessed 10 April 2015).

⁸ Renewable energy obligation schemes have been introduced by several EU Member States in pursuance of Article 2 (l) of the Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources (RES Directive), *Official Journal (OJ) L 140* of 05/06/2009. Very often, these schemes are implemented by using 'green certificates'.

⁹ See Article 5 of Directive 2009/28/EC. ¹⁰ See Article 2 (k) of Directive 2009/28/EC.

¹¹ The EU emission trading scheme (ETS), which was created in 2005, is the largest international system for trading greenhouse gas emission allowances. It also operates in the member countries of the European Economic Area (Iceland, Norway and Lichtenstein). Other countries implementing a cap-and-trade system are Switzerland, Australia, New Zealand and Kazakhstan. There are also countries that implement ETSs at regional levels, for instance the United States (California and the Regional GHG Initiative), Canada (Quebec), Japan (Tokyo and Saitama) and China (ETSs have been introduced in six Chinese provinces). Furthermore, various countries have scheduled the launch of an ETS (e.g. South Korea) or are considering it (Mexico, Chile, Ukraine and Brazil). IEA, *Redrawing the Energy Climate Map*, p. 24.

¹² For instance, the EU emission trading scheme covers CO₂, nitrous oxide (N₂O) and perfluorocarbons (PFCs).

cap, the covered companies receive or buy emission allowances,¹³ which they can trade and whose price is determined on the market by the interaction between supply and demand. By putting a price on carbon, ETSs give companies the flexibility to choose how to reduce GHG emissions in the most cost-effective way while promoting investment in low-carbon technologies.¹⁴ The electricity sector is normally covered by existing ETSs.¹⁵

The use of electricity generated from RE sources is also promoted through direct support schemes (i.e. subsidies) implemented by governments. Clean energy subsidies take various forms, from financial transfers (e.g. consumer subsidies) to direct price support schemes such as feed-in tariffs (FiTs); from preferential tax credits (e.g. investment tax credits, production tax credits or tax credits for consumption) to other regulatory and investment support measures aimed at lowering the cost of green electricity production or facilitating the distribution and supply of green electricity to consumers.¹⁶ The use of subsidies, however, has recently come under closer scrutiny as a result of concerns about long-term efficiency and, at least in some cases, uncertainty regarding their WTO compatibility.¹⁷

In light of all the foregoing, many countries are currently making a regulatory shift in the electricity sector, from RE promotion systems to RE steering systems. In simple terms, this means substituting subsidies with excise taxes on electricity. If a tax is imposed equally on all types of electricity, it will have the desirable effect of reducing overall electricity consumption but will be useless in terms of promoting generation of

¹³ Each allowance conventionally confers the right to emit one tonne of covered GHG emissions.

¹⁴ For a detailed analysis of the functioning of the existing emission trading systems in the world, see A. Talberg and K. Swoboda, *Emission Trading Schemes Around the World*, Background Note for the Parliament of Australia (2013), http://parlinfo.aph.gov.au/parlInfo/download/library/prspub/2501441/upload_binary/2501441.pdf;fileType=application/pdf (accessed 10 April 2015).

¹⁵ IEA, *Redrawing the Energy Climate Map*, p. 24.

¹⁶ For a thorough description of the various forms of clean energy subsidies currently in place in leading RE countries see Ghosh and Gangania, *Governing Clean Energy Subsidies*, p. 20 ff.

¹⁷ Among the different types of clean energy subsidies, the use of FiTs coupled with local content requirements (LCRs) has in particular been challenged before the WTO Appellate Body under the WTO Agreement on Subsidies and Countervailing Measures (ASCM). See AB Report, *Canada - FIT Program*; AB Report, *European Union and Certain Member States - Certain Measures Affecting the Renewable Energy Generation Sector, Request for Consultation by China*, 7 November 2012; AB Report, *India - Certain Measures Related to Solar Cells and Solar Modules*, WT/DS456/AB/R, 14 October 2016.

electricity from renewable sources. To promote investments in RE, tax rates need to be applied so as to stimulate the generation and consumption of green electricity and discourage the generation and consumption of grey electricity. The differentiated electricity tax system thus consists of tax rate reductions or exemptions for green electricity.

II *The Use of Electricity Certificates for Differentiated Electricity Taxation*

When assessing the compliance of a differentiated electricity tax with international trade rules, it is necessary to take into consideration the special characteristics of electricity as a product. The intangible nature of electricity and electricity trade's dependence on the availability of grids constrain the circulation of electricity in the market and limit trade in electricity among countries. Electricity has traditionally been traded within national jurisdictions or between neighbouring countries connected by grids. However, it is expected that international trade in electricity will increase in the future, as investments in modern technologies will enable the construction of international interconnected power networks.¹⁸ Indeed, supplying Europe with electricity from North Africa through interconnected grids seems to be feasible.¹⁹ A system of interconnected grids between the EU and Eurasia is already in place. This all means that the relevance of WTO rules applicable to international trade in electricity is steadily increasing.

The implementation of a differentiated electricity tax system needs also to take into consideration the homogeneity of electricity as a product. It is impossible to distinguish between green and grey electricity based on appearance and physical characteristics. The application of different tax rates to different types of electricity needs to rely on an electricity certification scheme. Different tax rates would be levied on electricity based on certificates proving the source of the electricity. Electricity certification schemes are already used by some countries, in most cases for purposes of electricity source disclosure. One example of such certification is the system of guarantees of origin (GOs) envisaged

¹⁸ IEA, *Cross-Border Trade in Electricity and the Development of Renewable-Based Electric Power: Lessons from Europe* (2013), Annex 2 on Liberalisation of Electricity Markets, Competition and the Drivers of Cross-Border Trade in Electricity, p. 50.

¹⁹ S. Chatzivasileiadis, D. Ernst and G. Andersson, 'The Global Grid', *Renewable Energy*, 57 (2013), 372–83.

by the EU Renewable Energy Directive.²⁰ The aim of the GOs is to inform consumers about electricity generated from RE. Each certificate is issued electronically for 1 MW/h and is valid for one year. GOs are issued on the request of any RE electricity generator, subject to a minimum capacity limit. Usually, GOs do not correspond to the physical flow of generated electricity. They are traded virtually as financial assets on the European Energy Exchange (EEX) and other electricity markets.

There are other types of certificates related to electricity besides GOs. For instance, RE obligation schemes, which impose on the EU electricity suppliers the requirement to supply a certain percentage of electricity produced from RE in order to achieve a mandatory target of 20 per cent of green energy in total EU energy consumption by 2020, are based on green certificates. Furthermore, various electricity labels have been introduced with the purpose of disclosing information to consumers on different aspects of electricity quality (e.g. Swiss 'naturemade', TÜV SÜD, etc.).²¹ Green electricity labels are issued by a specific certification body at the request of electricity generators, provided they fulfil certain (sustainability) requirements under the given labelling scheme. Green electricity labels are attached to the physical flows of electricity produced by certified electricity generators. Green labels are different to green certificates in that the former certify the green origin of electricity per kWh whereas the latter provide information on the sustainability footprint of electricity plants, including their environmental impacts, social and economic criteria and various process criteria.

Finally, the implementation of a differentiated electricity tax could also be based on RECs specifically issued for the purposes of granting electricity tax exemptions. The use of such tax exemption certificates (TECs), which are part of the Climate Change Levy (CCL) applied to electricity and energy resources in the United Kingdom, is discussed below.

III *Electricity Tax Practices in the EU*

The application of taxes to electricity in EU countries is guided by the EU Directive on restructuring the Community framework for the taxation of

²⁰ See Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources (RES Directive), Article 15. OJ L 140 of 05/06/2009, p. 16.

²¹ PriceWaterhouseCoopers and WWF (2009), *Green Electricity: Making a Difference. An International Survey of Renewable Electricity Labels*, www.repower.com/fileadmin/user_upload/re-all/02_Files_PDF-DOC-XLS/z_to_be_classified/Berichte_und_Studien/pwc_green_electricity_making_a_difference.pdf (accessed 10 April 2016).

energy products and electricity.²² Article 15(1) of the Directive allows the application of an electricity tax at different rates depending on the source of the electricity, subject to EU non-discrimination and state aid rules. It also allows Member States to apply total or partial tax exemptions or reductions. Article 15(2) of the Directive further stipulates that the tax level can also be reduced by paying some or all of the amount of tax back to the producer of RE electricity.

As regards the application of electricity taxes to imports, individual EU Member States' practices vary. Finland used to apply an electricity tax at different tax rates based on electricity sources for domestic electricity and an average tax rate on imports of electricity. It justified this practice by claiming that the source of imported electricity could not be easily traced.²³ In the United Kingdom, electricity tax exemptions are available for domestic and imported electricity alike if electricity comes from renewable sources.²⁴ The Netherlands used to grant electricity tax exemptions to consumers without any restrictions on the origin of RE electricity.²⁵

Electricity taxes featuring exemptions for RE electricity are currently in place in a number of EU Member States, including Denmark, Germany, Lithuania, Poland, Sweden and the United Kingdom. Tax exemptions are provided either to suppliers of all types of green electricity or only to suppliers of particular types of green electricity (e.g. only for wind electricity in Sweden or only for wind, hydropower and solar in Denmark), or depending on the size of renewable power facilities (e.g. only to plants with installed capacity of less than 5 MW in Poland).²⁶

EU countries applying different electricity tax rates based on electricity sources resort to various types of RECs to trace the source of electricity. In Poland, the implementation of exemptions for renewable electricity is

²² See EU Directive 2003/96/EC. OJ L 283 of 31/10/2003, p. 51.

²³ The European Court of Justice (ECJ) found these differences in the application of the tax to be in breach of EU non-discrimination rules. See Case C-213/96, *Outokumpu Oy*, 1998 ECR I-1777.

²⁴ Ofgem, Climate Change Levy (CCL) exemption, www.ofgem.gov.uk/environmental-programmes/climate-change-levy-ccl-exemption (accessed 20 January 2016).

²⁵ T. Winkel, M. Ragwitz, G. Resch and I. Konstantinaviciute, *Renewable Energy Policy Country Profiles 2011*, www.reshaping-res-policy.eu/downloads/RE-SHAPING_Renewable-Energy-Policy-Country-profiles-2011_FINAL_1.pdf (accessed 20 January 2016). See also K. Holzer and I. Espa, 'Greening electricity through taxing: an analysis of GATT constraints', *NCCR Working Paper No. 2015* (9 April 2015).

²⁶ J. M. Cansino, M. del P. Pablo-Romero, R. Román and R. Yñiguez, 'Tax incentives to promote green electricity: an overview of EU-27 countries', *Energy Policy*, 38(10) (2010), pp. 6000-8.

based on green certificates, or certificates of origin. The exemption from an excise duty is granted on submission to the customs office of a written statement by the electricity generator or supplier stating that the green certificates were confirmed by the Energy Regulatory Office as proof of the green origin of the electricity.²⁷ In Lithuania, electricity tax exemptions are provided for national suppliers of domestic and imported green electricity from different sources.²⁸ The exemptions are provided for under Article 46(2) of the Law on Excise Duty against submission of GOs, which are authorised by the transmission system operator, or any other evidence confirming that electricity was generated from RE sources.²⁹ In the United Kingdom, suppliers of domestic or foreign green electricity are exempted from the tax based on the tax exemptions certificates specifically introduced for these purposes. Electricity in the United Kingdom is taxed in accordance with the climate change levy (CCL) scheme, which applies an excise tax on electricity and fossil fuels in relation to climate change policy.³⁰ The CCL scheme provides exemptions for both domestic and imported green electricity. To receive exemptions, an electricity supplier must be in possession of renewables levy exemption certificates (LECs) obtained from an accredited green electricity producer in the United Kingdom or abroad. Certificates for domestic and foreign green electricity producers are issued by Great Britain's Office of Gas and Electricity Markets (Ofgem) or the Northern Ireland Authority for Utility Regulation through electronic registration.

C WTO Law Implications of a Differentiated Electricity Tax

I Status of Electricity in the WTO Legal System

Under WTO law, electricity qualifies as a good and falls under the provisions of the General Agreement on Tariffs and Trade (GATT).³¹

²⁷ *Ibid.*, p. 6005.

²⁸ Law on Excise Duty of the Republic of Lithuania, 29/01/2004, No. IX-1987.

²⁹ Order of the Ministry of Economy on the 'Electrical Energy, Generated from Renewable Energy Sources, Guarantees of Origin Authorization Rules', 07/10/2005, No. 4-346.

³⁰ Ofgem, Climate Change Levy (CCL) exemption.

³¹ Panel Report, *Canada - Measures Relating to the Feed-in Tariff Program (Canada - FIT Program)*, 19 December 2012, WT/DS426/R, para. 7.11, footnote 46. It should be noted, however, that electricity was classified as a good in the GATT era, when there was no legal framework for trade in services (this was established later by the WTO's General Agreement on Trade in Services [GATS]). There is currently discussion in the literature as to whether electricity should not be better dealt with as a service.

It is enclosed in the GATT Schedule of Concessions as an optional commitment under the heading HS 2716.00. Electricity is listed in subsection 27, 'Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes', of section V, 'Mineral products'. Since the tariff commitment for electricity is optional, some WTO Members have left themselves a right to impose import duties on electricity at their own discretion. Yet, even these WTO members are obliged to observe all other provisions of GATT, including non-discrimination rules, when they trade electricity with other countries. This also applies to tax matters. First, countries have an obligation to provide tax treatment in accordance with the most favoured nation (MFN) principle to electricity imported or exported from/to all other WTO members under GATT Article I.³² Second, they need to observe the national treatment (NT) principle in relation to taxing electricity under GATT Article III:2.³³

Furthermore, electricity trade, and particularly operations with RECs, may fall under the disciplines for financial services and thus be subject to the provisions of the General Agreement on Trade in Services (GATS) and the Understanding on Commitments in Financial Services.³⁴ Countries' obligations under the GATS may also be relevant to the extent that electricity tax schemes may have an impact on service providers, particularly in relation to transportation and distribution of electricity. However, GATS issues are beyond the scope of this chapter.

II Relevant GATT Rules and Exceptions

1 Non-Discrimination Principles

Consideration of the compliance of a differentiated electricity tax with the MFN and NT obligations will have to be based on like product analysis, because the MFN and NT obligations only apply to trade in

³² The MFN provision of GATT Article I requires that any benefit provided to a product imported from or exported to any WTO member must also be provided to a like product imported from or exported to all other WTO members.

³³ In general terms, the NT provision of GATT Article III prohibits a protectionist treatment for domestic products.

³⁴ See P. Delimatsis, 'Financial innovation and climate change: the case of renewable energy certificates and the role of the GATS', *World Trade Review*, 8(3) (2009), 439-60; P. Delimatsis and D. Mavromati, 'GATS, financial services and Trade in Renewable Energy Certificates (RECs) – just another market-based solution to cope with the tragedy of the commons?' in T. Cottier, O. Nartova and S. Z. Bigdeli (eds.), *International Trade Regulation and the Mitigation of Climate Change* (Cambridge: Cambridge University Press, 2009), pp. 231-58.

like products or products which are directly competitive or substitutable. The NT obligation prohibits the application of a tax on imports at a rate which is in excess of the tax rate applied to like domestic products. If the products qualify as like, even a small difference in the tax rate to the detriment of imports would lead to a finding of discrimination.³⁵

In examining the compliance of a differentiated electricity tax with the non-discrimination principles under the GATT, the main question is whether electricity originating from RE can be viewed as different to or unlike electricity originating from fossil fuels.³⁶ Neither WTO jurisprudence nor the literature gives a clear answer to this question, which is part of an old debate on the accommodation of measures imposed on processes and production methods (PPMs) under the GATT regulatory framework.³⁷ Unlike EU law, which accepts trade measures based on production methods,³⁸ WTO law does not provide a clear answer as to the legal status of such measures, especially with regard to those PPMs that do not change the physical qualities of a product (i.e. non-product-related PPMs).³⁹

When assessing whether products are like or different, WTO panels look at the competitive relationship between products and use four criteria that signal likeness of products: products' physical characteristics, products' end uses, consumer preferences and tariff classification.⁴⁰ Since electricity is electricity no matter whether it is generated from carbon-intensive or carbon-free energy sources, it falls under the same tariff code in the countries' schedules of concession and is intended for the same use as power in all cases. Accordingly, only a consumer's preference for electricity produced from renewable sources can render green and grey electricity 'unlike products'. An argument can be made that consumers in

³⁵ AB Report, *Japan – Taxes on Alcoholic Beverages (Japan – Alcoholic Beverages II)*, adopted 1 November 1996, WT/DS8/AB/R, WT/DS10/AB/R, WT/DS11/AB/R, p. 22.

³⁶ It should be noted that likeness of products is always assessed on a case-by-case basis.

³⁷ For more on this, see Ecoplan, WTI and University of Zurich (2013), *Border Tax Adjustments: Can Energy and Carbon Taxes Be Adjusted at the Border?* Final report prepared for the Swiss State Secretariat for Economic Affairs and the Swiss Federal Finance Administration, pp. 80-1.

³⁸ For instance, the ECJ did not find a PPM-based electricity tax applied in Finland in the 1990s to constitute a violation of EU law. See Case C-213/96, *Outokumpu Oy*, 1998 ECR I-1777.

³⁹ C. R. Conrad, *Processes and Production Methods (PPMs) in WTO Law: Interfacing Trade and Social Goals* (New York: Cambridge University Press, 2011), pp. 275-81.

⁴⁰ See, e.g., AB Report, *European Communities – Measures Affecting Asbestos and Asbestos Containing Products (EC – Asbestos)*, adopted 5 April 2001, WT/DS135/AB/R, para. 101.

a particular market prefer green electricity to grey electricity under the availability of an electricity certification system that can facilitate their choice.⁴¹ Uncertainty exists, however, as to whether consumer preferences for green electricity will be considered to be strong enough to prevail over other likeness criteria which are the same for grey and green electricity (physical qualities, end uses and the tariff code).

In *EC – Asbestos*, consumer preferences played a prominent role in the Appellate Body's (AB) finding of unlikeness of asbestos-containing and asbestos-free products. Without going into an examination of evidence, and based on the public awareness of hazards to human health from the use of asbestos, the AB made an assumption that consumers prefer to purchase products that do not contain asbestos. Thus, health risks associated with the use of asbestos-containing products rendered these products unlike those products that do not contain asbestos.⁴² However, the consumption of fossil fuel electricity is different in this respect. The consumption of electricity generated from coal or nuclear energy does not create a direct association with health risks for consumers. The negative consequences of the use of coal-fired electricity are less tangible than the risks inflicted by the use of asbestos-containing products. Moreover, the realisation of consumer preferences for green electricity depends on the availability of a certification scheme established by the regulator in the electricity market. Without the use of certificates, consumers will not be able to distinguish between different types of electricity and to make their choice based on such a distinction.⁴³

Consumers' heedfulness of the methods by which electricity is generated can also serve as evidence that 'green' electricity and 'grey' electricity are in a competitive relationship in the market, and as such are not completely identical (like) products but rather products that are directly competitive or substitutable. In *Canada – FIT Program*, the AB noted that directly competitive or substitutable products in the sense of GATT Article III:2, second sentence, are 'products that are in a competitive relationship. What constitutes a competitive relationship between products

⁴¹ R. Howse, *World Trade Law and Renewable Energy: The Case of Non-Tariff Barriers* (Geneva: UNCTAD, 2009), p. 3.

⁴² AB Report, *EC – Asbestos*, paras. 123–126.

⁴³ Certificates to facilitate consumption of RE electricity are not needed in the situation where RE electricity is generated by households and companies using solar PV panels. However, this constitutes only a small part of RE electricity consumption. A prevailing part of electricity is distributed to households and companies from the single electricity grid fed by a physically inseparable mix of 'green' and 'grey' electricity.

may require consideration of inputs and processes of production used to produce the product.⁴⁴ Based on this argument, different types of electricity generated by different production methods can fall under the category of directly competitive or substitutable products.

Taxation of directly competitive or substitutable products is subject to a more lenient set of NT rules than those applicable to the category of like products.⁴⁵ As per GATT Article III:2, second sentence, the tax treatment of directly competitive or substitutable products must not be identical in order to satisfy the NT requirement. In contrast to the first sentence of GATT Article III:2, domestic and imported directly competitive or substitutable products are to be taxed similarly; certain variations in the amount of tax can thus be accommodated as long as they do not result in the protection of domestic production.⁴⁶ Although a differentiated electricity tax which is levied at higher rates on fossil fuel electricity and at lower rates on RE electricity with respect to all electricity sold in the market is origin-neutral *de jure*, discrimination can occur *de facto* if the proportion of fossil fuel electricity in electricity imports is significantly higher than the proportion of fossil fuel electricity in electricity generated domestically. This means that to meet the requirement of the second sentence of Article III:2, the amounts of imported and domestic electricity disadvantaged by a tax should be commensurate.

Finally, based on the recent WTO jurisprudence, it is still possible that electricity generated from RE sources will be found to be a different or unlike product from electricity generated from fossil fuels. In the *Canada – FIT Program* case, when assessing the compliance of Ontario's FIT scheme with the rules on subsidies under the ASCM, the AB found that electricity generated from solar photovoltaic (PV) and wind power technology and electricity generated from fossil fuels were sold in different markets. The markets were considered to be different because of the differences in the type of power (solar and wind plants generate peaking power, whereas coal-based and nuclear plants generate base-load power), the differences in contracts and the differences in consumers' sizes. Yet, the biggest difference was in the supply-side factors. According to the AB, 'supply-side factors suggest that wind-power and solar PV producers of electricity cannot compete with other electricity producers because of

⁴⁴ AB Report, *Canada – FIT Program*, para. 5.63.

⁴⁵ Alcoholic beverages (e.g. soju, whisky, brandy, gin, rum) are an example of products that were considered to be directly competitive or substitutable by WTO adjudicative bodies.

⁴⁶ See GATT Article III:2 and Ad Article III:2 read together.

differences in cost structures and operating costs and characteristics'.⁴⁷ The AB also noted that, unlike the market for conventional electricity, the market for green electricity would have not come into existence, due to high production costs and competitive disadvantages, if a government had not created it through regulation.⁴⁸ Thus, when determining the likeness of product markets in the context of the ASCM analysis, the AB looked not only at demand-side factors but also at supply-side conditions. If supply-side factors are taken into account in the analysis of likeness of different types of electricity under the GATT, green and fossil fuel electricity will be found to be different or unlike products. In that case, the differences in their tax rates will not raise issues of compliance with the NT obligation under the GATT. It remains to be seen whether WTO adjudicative bodies will be willing to incorporate the ASCM approach to likeness in the likeness analysis under the GATT.

To sum up, three different scenarios can be envisaged with respect to the analysis of likeness of 'green' and 'grey' electricity:

1. they may be found to be 'unlike products' and thus allowed to be treated differently in terms of taxation;
2. they may be found to be 'like products' and differentiated tax rates would thus be in violation of the NT rule;
3. they may qualify as 'directly competitive or substitutable products' and a breach of the NT rule could arise if a disproportionate tax burden is placed on electricity imports.

As follows from the *Shrimp – Turtle* jurisprudence, PPM measures that fail to meet obligations under the GATT – in our case, these would be scenarios (2) and (3) – may be justified under the general exceptions of GATT Article XX.⁴⁹ Whether the application of differentiated tax rates to electricity generated from different sources can be defended under the general exceptions is discussed in the next section.

2 Applicability of GATT Article XX Exceptions

Exceptions to GATT rules are available for measures taken in pursuit of one of the non-trade policy objectives specified in GATT Article XX. An important initial step in the analysis of whether a measure can be justified under GATT Article XX is the determination of its objective.

⁴⁷ AB Report, *Canada – FIT Program*, para. 5.174. ⁴⁸ *Ibid.*, para. 5.175.

⁴⁹ AB Report, *United States – Import Prohibition of Certain Shrimp and Shrimp Products (US – Shrimp)*, adopted 6 November 1998, WT/DS58/AB/R, para. 121.

A differentiated electricity tax can fall within the scope of Article XX if a link can be established with protection of the environment and/or public health. In the first case, a country introducing a differentiated electricity tax may seek justification under paragraph (g) of Article XX, which protects measures 'relating to a conservation of exhaustible natural resources'. In the second case, it may be able to justify a tax under paragraph (b) as a measure 'necessary to protect human, animal or plant life or health'.

In most cases, a differentiated electricity tax can qualify as an environmental or climate change-related measure falling under GATT Article XX (g). This may also be the case where the objective of a differentiated electricity tax is officially formulated as the promotion of production and consumption of RE. While this objective *prima facie* has a link to industrial policy, ultimately the industrial policy-related objective is driven by climate change concerns.⁵⁰ It could be argued that the promotion of green electricity aims to substitute the generation of electricity from fossil fuels (coal, oil and gas), which causes carbon emissions and consequently leads to climate change.

The question is, however, whether paragraph (g) can also be invoked to justify a higher tax rate on nuclear electricity, which is generally considered to be carbon-neutral.⁵¹ While it is not associated with GHG emissions and the problem of climate change, electricity generated from nuclear power can still be connected with environmental problems. The environmental problems are caused by nuclear waste, which is stored underground.⁵² The issue of nuclear waste storage is likely to be sufficient for arguing under paragraph (g). Moreover, a higher tax rate for nuclear electricity might be defended under paragraph (b) on the grounds that the operation of nuclear power plants presents risks to human life and health from possible accidents at nuclear power plants, such as those that

⁵⁰ For instance, a proposal for implementation of the second phase of Swiss Energy Strategy 2050, which considers differential electricity taxation as an option, is based on the assumption that renewable energy promotion and climate change mitigation goals are closely intertwined. See *Verfassungsbestimmung über ein Klima- und Energielenkungssystem. Erläuternder Bericht zum Vorentwurf* (EFV, BFE, BAFU, 2015), pp. 16–17.

⁵¹ J. Sathaye, O. Lucon and A. Rahman, 'Renewable energy in the context of sustainable energy', in O. Edenhofer, R. Pichs-Madruga, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer and C. von Stechow, *IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation* (Cambridge: Cambridge University Press, 2011), pp. 732–3.

⁵² *Ibid.*, pp. 745–7.

happened in Chernobyl and Fukushima. Thus, justification of a differentiated electricity tax may require an invocation of several exception clauses at the same time, which is acceptable under WTO law, as a measure can consist of different elements that can be subject to justification under different exceptions.⁵³ In the *US - Gasoline* dispute, for instance, the panel scrutinised US standards for reformulated and conventional gasoline under three exceptions clauses.⁵⁴ Accordingly, justification of a higher tax rate for coal-based electricity compared to other types of electricity would have to be sought under Article XX (g), while justification of a higher tax rate for nuclear electricity would have to be sought under Article XX (b) and Article XX (g).

Once the link of a measure to the policy objective under a specific paragraph is established, the next step is analysis of the strength of this link. Paragraph (b) requires that a measure must be necessary for the achievement of the objective of health protection, while under paragraph (g) a measure must merely relate to the objective of conservation of exhaustible natural resources. In this respect, the link between a measure and a paragraph's objective is stronger under paragraph (b). Analysis of a differentiated electricity tax for nuclear electricity under paragraph (b) consists of the necessity test, which will look at whether the same objective could be met by alternative measures that are less trade-restrictive, whether these alternative measures could be reasonably available and whether they could equally guarantee the achievement of the objective.⁵⁵ Although alternative measures, such as a complete prohibition of sales of nuclear electricity or the use of labels (certificates) discouraging the consumption of nuclear electricity, could be found, they are unlikely to be considered as proper substitutes. A government cannot prohibit sales of nuclear electricity until the entire substitution of this type of electricity in the electricity supply is possible. Moreover, prohibition of sales is a more trade-restrictive alternative. As regards the use of labels, although these are less trade-restrictive measures, they

⁵³ AB Report, *European Communities - Regime for the Importation, Sale and Distribution of Bananas (EC - Bananas III)*, adopted 25 September 1997, WT/DS27/AB/R, para. 221.

⁵⁴ Panel Report, *United States - Standards for Reformulated and Conventional Gasoline (US - Gasoline)*, adopted 20 May 1996, WT/DS2/R.

⁵⁵ AB Report, *Korea - Measures Affecting Imports of Fresh, Chilled and Frozen Beef (Korea - Various Measures on Beef)*, adopted 10 January 2001, WT/DS161/AB/R, WT/DS169/AB/R, para. 164; Appellate Body Report, *Dominican Republic - Measures Affecting the Importation and Internal Sale of Cigarettes (Dominican Republic - Import and Sale of Cigarettes)*, adopted 19 May 2005, WT/DS302/AB/R, para. 70.

are unlikely to be found to be as efficient for achievement of the objectives as the use of a tax.

The 'relating to' link with the objective under paragraph (g) will be easier to establish. Paragraph (g), however, also contains a requirement that a measure must be taken in conjunction with the imposition of constraints on domestic production or consumption. It means that the environmental objective of a differentiated electricity tax needs to be consistently pursued in the internal market through national policies. In the context of a differentiated tax for nuclear electricity, the deployment of a strategy for the phasing-out of domestic production of nuclear electricity would be in line with this requirement.

The analysis of a differentiated electricity tax under Article XX can also raise the issue of extraterritorial application, that is, the impacts of such a tax on electricity-generation methods used by foreign producers. WTO case law does not exclude the possibility of justification of extraterritorial measures under GATT Article XX, especially if a link can be established between what happens in the exporting country and the risks inflicted on the importing country by the situation in the exporting country.⁵⁶ It should not be a problem to establish the territorial connection of risks in the case of a differentiated electricity tax. It could be argued that climate change has no territorial borders, and even if it is caused by the generation of electricity from fossil fuels in the territory of the exporting country, it still has effects on the climate in the importing country. Similarly, it could be argued that the environmental and health effects of nuclear plant accidents that may happen in the territories of exporting countries would also be felt in the territory of the importing country.

The accommodation of a differentiated electricity tax under paragraphs (g) or (b) of GATT Article XX will provide only a preliminary justification for the tax. In the second step, a differentiated electricity tax will have to be assessed for compliance with the conditions of the introductory paragraph (chapeau) of Article XX.⁵⁷ This stage will see the determination of whether or not a differentiated electricity tax is applied in a manner that constitutes arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or that constitutes a disguised restriction on trade. To pass the test on arbitrary discrimination under the chapeau of Article XX, application of a differentiated electricity tax must take into account conditions prevailing in

⁵⁶ *Ibid.*, para. 134. ⁵⁷ AB Report, *US - Gasoline*, p. 22.

the countries from which electricity is imported. The meaning of 'conditions' here has a link with the objective of a paragraph or, more precisely, with the risks that a measure is aimed to mitigate.⁵⁸ Variations in the application of an electricity tax in relation to electricity that carries the same risks with respect to the environment or health would result in a finding of arbitrary discrimination preventing justification under GATT Article XX. However, as follows from the recent WTO case law, a measure's mode of application can somewhat deviate from the objective under a paragraph, if this is necessary to fulfil a country's obligations under an international agreement. The latter can apparently be untethered from the principal objective of a measure, that is, the objective of a paragraph of Article XX under which a measure is meant to be justified.⁵⁹ It is not entirely clear, however, how this recent addendum to the 'prohibition of arbitrary justification' standard's interpretation under the chapeau can be reconciled with the requirement that the discrimination has a link to the objective under a paragraph, which was advanced by WTO adjudicative bodies in past disputes.⁶⁰ Most probably, in the view of the AB, a measure pursuing multiple objectives must be not only the least discriminatory, but also the least inconsistent in relation to the principal legitimate objective.⁶¹

⁵⁸ AB Report, *Brazil – Measures Affecting Imports of Retreaded Tyres (Brazil – Retreaded Tyres)*, adopted 20 August 2009, WT/DS332/AB/R, para. 227. For interpretation of the prohibition of arbitrary discrimination under the Chapeau of Article XX by WTO adjudicative bodies, see K. Holzer, *Carbon-related Border Adjustment and WTO Law* (Cheltenham: Edward Elgar, 2014), pp. 167–75.

⁵⁹ In *EC – Seals*, the scrutiny of the EU regime for seals and seal-containing products under GATT Article XX focused, *inter alia*, on finding the right balance between the principal objective of the measure to address public moral concerns regarding seal-killing methods and the competing aim of accommodating the subsistence needs of Inuit communities acknowledged in the UN Declaration on the Rights of Indigenous Peoples and other international treaties protecting the rights of indigenous peoples, which the EU aimed to observe. See AB Report, *European Communities – Measures Prohibiting the Importation and Marketing of Seal Products (EC – Seal Products)*, adopted 22 May 2014, WT/DS400/AB/R, paras. 5.321–5.326.

⁶⁰ It should be noted that, in the end, both the panel and the AB in *EC – Seals* found the exception provided to Inuit (and the exception linked to the maritime management) to be incompatible with the principal objective of the seals regime, that is, the protection of public morals, and recommended adjusting the measure accordingly. For a detailed analysis of the *Seals* case, see T. Cottier, R. Liechti, I. Espa and T. Payosova (2015), 'The jurisprudence of the World Trade Organisation in 2014', *Schweizerische Zeitschrift für internationales und europäisches Recht*, 25(2) (2015), 239–64.

⁶¹ L. Bartels, 'The chapeau of the general exceptions in the WTO GATT and GATS Agreements', *American Journal of International Law*, 109 (2015), 95–124.

That being said, there is nothing in the text of GATT Article XX and in the Article XX jurisprudence to suggest that an electricity tax imposed at different tax rates depending on the electricity sources would be difficult to justify under the general exceptions of the GATT. It is an important conclusion, taking into account that there will be a need for justification in the scenarios in which green and grey electricity are considered to be like or directly competitive or substitutable products and the differences in tax rates trigger a violation of GATT non-discrimination rules.

III Application of WTO Subsidies Disciplines to Differentiated Electricity Tax

A differentiated taxation scheme for electricity, especially where a lower tax rate is granted to particular electricity producers, may raise further compliance concerns under the WTO disciplines on subsidies.⁶² WTO law addresses only those subsidies that, in the form of governmental intervention, distort international trade by giving 'an artificial competitive advantage to exporters or to import-competing industries'.⁶³

WTO disciplines on subsidies – namely, the provisions of the ASCM – differentiate between three categories of subsidies: prohibited, actionable and non-actionable. Currently, only the first two categories exist.⁶⁴ The ASCM explicitly prohibits subsidies that are contingent (*de jure* or *de facto*) on export performance (export subsidies) or on the use of domestic goods over imported goods (import substitution

⁶² The WTO disciplines on subsidies include the provisions of GATT Article XVI and the Agreement on Subsidies and Countervailing Measures. The provisions of the ASCM and GATT Article III contain cumulative obligations. The AB confirmed that, notwithstanding the fact that both agreements may deal with the same type of discriminatory measures, the WTO panel has to analyse the respective claims under both of the agreements, since the remedies provided for in case of violation are different. However, there is no clear-cut rule on the order of analysis: see AB Report, *Canada – FIT Program*, para. 5.5.

⁶³ WTO Secretariat, *World Trade Report 2006: Exploring the Links between Subsidies, Trade and the WTO*, www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report06_e.pdf (accessed 10 January 2016); see also Panel Report, *Brazil – Export Financing Programme for Aircraft (Brazil – Aircraft)*, adopted 20 August 1999, WT/DS46/R, as modified by AB Report WT/DS46/AB/R, DSR 1999:III, 1221, para. 7.26; Panel Report, *Canada – Measures Affecting the Export of Civilian Aircraft (Canada – Aircraft)*, adopted 20 August 1999, WT/DS70/R, upheld by AB Report WT/DS70/AB/R, DSR 1999:IV, 1443, para. 9.119.

⁶⁴ The so-called non-actionable subsidies envisaged in ASCM Article 8 were phased out in 1999, in line with ASCM Article 31.

subsidies).⁶⁵ All other subsidies will be considered as non-compliant with WTO law only if they cause adverse effects to the interests of another WTO member. To remedy the negative effects from imports of the subsidised products, WTO law provides for two different tracks of response. First, it gives the WTO members concerned the right to bring a claim to the WTO against the subsidies of another WTO member (a multilateral track). Second, WTO members can also resort to unilateral measures subject to strict procedural requirements set out in the ASCM and, if given conditions are met, apply countervailing duties. We provide an analysis of the differentiated taxation of electricity against this general background.

An electricity tax with different rates for green and grey electricity will fall within the scope of the ASCM only if it constitutes a subsidy, that is, either a financial contribution or an income or price support.⁶⁶ In addition, it should confer a benefit and comply with the specificity requirement.⁶⁷ Application of different tax rates to green and grey electricity is not linked *per se* to export performance or import substitution, and therefore would not fall within the category of prohibited subsidies.

With respect to the first element of analysis, a differentiated electricity tax will only constitute a financial contribution if a government, any public body or an entrusted private body (i) directly transfers funds, or (ii) provides fiscal incentives (government forgoes the revenue that is otherwise due), or (iii) purchases goods or provides goods or services apart from general infrastructure.⁶⁸

The general scheme of differentiated tax on electricity would potentially fall under the second category of financial contribution, namely a government revenue (e.g. a tax) that is otherwise due, which is forgone. According to the WTO panel in *Canada – Autos*, the term 'government revenue' can be defined as '[t]he annual income of a government or State, from all sources, out of which public expenses are met'.⁶⁹ Furthermore, the AB has clarified on numerous occasions that 'the "foregoing" of revenue "otherwise due" implies that less revenue has been raised by the government than would have been raised in a different situation, that is,

⁶⁵ ASCM Article 3.1 (a) and (b). ⁶⁶ ASCM Article 1(1)(a)-(b). ⁶⁷ ASCM Article 2.

⁶⁸ ASCM Article 1(1)(a)(i)-(iii).

⁶⁹ Panel Report, *Canada – Certain Measures Affecting the Automotive Industry (Canada – Autos)*, adopted 19 June 2000, WT/DS139/R, WT/DS142/R, as modified by AB Report WT/DS139/AB/R, WT/DS142/AB/R, DSR 2000:VII, 3043, para. 10.159.

"otherwise". Moreover, the word "foregone" suggests that the government has given up an entitlement to raise revenue that it could "otherwise" have raised.⁷⁰ In order to establish what is 'otherwise due', an analysis should be based on a 'defined, normative benchmark against which a comparison can be made between the revenue actually raised and the revenue that would have been raised "otherwise"'.⁷¹ The basis of such comparison will always be the tax rules applied by the Member in question.⁷² Thus, the benchmark will be different in each case depending on the tax rules applied by the WTO Member under consideration.⁷³ As confirmed by the recent jurisprudence, WTO members have the sovereign right to set the rate, structure and operation modalities of the domestic tax regime and can also adjust it, as tax systems are not static. In *US – Large Civil Aircraft*, the AB suggested that in order to determine whether the government revenue is due in a specific case the panel should compare the tax treatment of the alleged subsidy recipients, taking into consideration an objective reason behind the differential treatment. The comparison should be made with respect to tax treatment of comparable income of comparably situated taxpayers in light of the structure of the domestic tax regime and its organising principles. Finally, the panel should also take into consideration the background and reasons for differences between the challenged tax treatment and the benchmark tax treatment.⁷⁴ In the present case of differential taxation of green and grey electricity, the panel would have to compare the tax

⁷⁰ AB Report, *Canada – Certain Measures Affecting the Automotive Industry (Canada – Autos)*, adopted 19 June 2000, WT/DS139/AB/R, WT/DS142/AB/R/DSR 2000:VI, 2985, para. 90; AB Report, *United States – Tax Treatment for 'Foreign Sales Corporations' (US – FSC)*, adopted 8 October 1999, WT/DS108/R, para. 90; AB Report, *United States – Measures Affecting Trade in Large Civil Aircraft (Second Complaint) (US – Large Civil Aircraft)*, adopted 23 March 2012, WT/DS353/AB/R, para. 806.

⁷¹ AB Report, *US – FSC*, para. 90.

⁷² AB Report, *Canada – Autos*, para. 90; AB Report, *US – FSC*, para. 90; AB Report, *US – Large Civil Aircraft*, para. 806.

⁷³ AB Report, *US – FSC*, para. 88–89. According to the AB in *US – FSC*, paras. 8.18–8.37, 'examination as to whether there is revenue foregone that is 'otherwise due' must be based on actual substantive realities and not be restricted to pure formalism . . . The key point is that the tax rules applied by the Member in question are the basis for the comparison': AB Report, *United States – Tax Treatment for 'Foreign Sales Corporations' (US – FSC (Article 21.5 - EC))*, adopted 14 January 2002, WT/DS108/AB/RW, paras. 86, 91–92. See also P. C. Mavroidis, G. A. Bermann and M. Wu, *The Law of the World Trade Organization* (St. Paul: West Publishers, 2010), p. 563.

⁷⁴ AB Report, *US – Large Civil Aircraft (2nd Complaint)*, para. 831.

treatment of green and grey electricity and take into consideration the objectives pursued by the WTO Member through such differentiation (e.g. climate change mitigation).

In light of these requirements established in WTO jurisprudence, it seems to be better, in terms of WTO compliance, if the government concerned envisages the differential tax rates for different energy sources at the outset based on the environment-related objectives pursued (and not through a general electricity rate and tax exemptions for green electricity). Furthermore, for the analysis of differentiated electricity taxation, it might potentially be possible to consider an environmental objective as the rationale behind the tax.⁷⁵ Importantly, WTO law, unlike EU law, does not require the lower tax rate (or a tax exemption) to be proportionate in light of the objective pursued.

In a second step, if a differentiated tax on electricity amounts to a financial contribution in the form of government revenue forgone, the panel would have to determine whether this differentiation confers a benefit.⁷⁶ The benefit is conferred to a recipient, that is, a green electricity utility subject to a lower electricity tax rate, if it is better off in the marketplace with this financial contribution than without it.⁷⁷ Neither the GATT nor the ASCM define the term 'benefit'; nor do either provide a particular methodology to determine whether a benefit is conferred. However, the recent WTO jurisprudence provides quite a detailed explanation as to what constitutes a 'benefit' within the meaning of Article 1. The panel in *US - Large Civil Aircraft (2nd Complaint)* clarified that there is a benefit if a financial contribution was granted on terms more favourable than the market terms.⁷⁸ In order to determine a benchmark for this comparison, WTO adjudicating bodies often rely on ASCM Article 14⁷⁹ as the relevant context for ASCM Article 1.1(b). However, based on previous case law, this is only possible where the financial contribution, as determined under Article 1(1)(a)(i)-(iii), is also

⁷⁵ L. Rubini, *The Definition of Subsidy and State Aid: WTO and EC Law in Comparative Perspective* (Oxford: Oxford University Press, 2009), pp. 260-80.

⁷⁶ Panel Report, *European Communities - Countervailing Measures on Dynamic Random Access Memory Chips from Korea (EC - DRAMS)*, adopted 3 August 2005, WT/DS299/R DSR 2005:XVIII, 8671, para. 7.212; see also AB Report, *Canada - Aircraft*, para. 154.

⁷⁷ AB Report, *US - Large Civil Aircraft (2nd Complaint)*, para. 873; Panel Report, *Canada - Aircraft*, para. 9.112.

⁷⁸ Panel Report, *US - Large Civil Aircraft (2nd Complaint)*, para. 7.475.

⁷⁹ ASCM Article 14 provides for a calculation of a subsidy in terms of the benefit to the recipient.

referred to in ASCM Article 14(a)-(d) (e.g. loans or purchase of goods by the government). Thus, it is not clear whether the recent position of the panel and the AB with respect to the decisive role of government definition of the electricity market, namely the supply mix, would have any effect on determination of benefit from the revenue forgone.⁸⁰ Notably, the AB has previously stated that reduced tax payments do constitute a benefit.⁸¹

In a third step, if the panel finds a benefit conferred by the differentiated electricity tax, the financial contribution would have to meet the specificity requirement, in line with ASCM Article 2. As a differentiated electricity tax - specifically, its lower rate (or tax exemption) - will apply only to particular enterprises or groups of enterprises, that is, green electricity utilities, it will most probably be found to be industry-specific. Whereas the ASCM allows WTO Members to differentiate between enterprises, industries and geographical regions where differentiation is based on objective eligibility criteria, which are applied automatically,⁸² the differentiated electricity tax is hardly likely to meet these conditions.

Finally, if the panel finds that the differentiated electricity tax constitutes an industry-specific subsidy, it will proceed with the analysis of adverse effects to the interests of other WTO Members. Given the special characteristics of the electricity trade, a differentiated electricity tax is not likely to cause an 'injury' through increased imports of green electricity from the subsidising WTO Member to the neighbouring WTO Member(s).⁸³ Similarly, it is unlikely that a differentiated electricity tax will lead to 'serious prejudice',⁸⁴ as it will not cause displacement of or impediment to imports of green electricity from abroad.

The compatibility of a differentiated electricity tax with the ASCM will depend to a large extent on its specific modalities. The probability of

⁸⁰ AB Report, *Canada - FIT Programme*, paras. 5.167-5.191; Panel Report, *Canada - FIT Programme*, paras 7.279-7.284.

⁸¹ AB Report, *US - FSC (Article 21.5 - EC)*, para. 191; AB Report, *US - FSC*, para. 140.

⁸² ASCM Article 2.1(b). Further, footnote 2 specifies that eligibility criteria for a financial contribution should be neutral (non-discriminatory), should not favour certain enterprises over others and should be 'economic in nature and horizontal in application'. It also gives examples of such criteria, namely size or number of employees of an enterprise. Negotiation history shows that earlier drafts of ASCM Article 2 referred also to other examples, e.g. incidences of pollution and health and safety standards, which at the very end were not included in the agreement. While it is not excluded that the panel may take into consideration negotiation history, the ordinary meaning of 'specificity' would prevail.

⁸³ Article 15 of the ASCM. ⁸⁴ Article 6 of the ASCM.

adverse effects remains low, given the limited cross-border trade in electricity in most regions of the world and its dependence on the available infrastructure, but cannot be fully disregarded.

D Analysis of Various Tax Design Options

For countries with limited RE development potential, merely offering differentiated tax rates for electricity may not help to achieve the target of an increased share of production of green electricity. Policy-makers may therefore consider the possibility of combining a differentiated electricity tax with additional requirements, including those that determine eligibility of RECs for tax exemption purposes. Restrictions could be introduced, for instance, on the admissibility of RECs for the purpose of granting tax exemptions. These restrictions could be both quantitative and qualitative. A quantitative restriction could be put on foreign RECs on the grounds that they can be acquired at a lower price than domestic RECs.⁸⁵ In terms of qualitative restrictions, the admissibility of RECs could be conditioned on the actual attachment to the physical flow of electricity, or restricted to RECs originating from electricity installations that are also certified for their environmental footprint. These additional requirements may further complicate prospects of compliance of such a differentiated electricity tax with WTO law. Moreover, the implications of an electricity tax with regard to WTO law would be different should the tax be based on electricity's carbon footprint.

I A Differentiated Electricity Tax with Quantitative Restrictions on the Acceptability of Certificates

The implications of a quantitative limitation on foreign RECs eligible for tax exemptions would likely impinge on the obligation of general elimination of quantitative restrictions under GATT Article XI:1, which forbids both import 'prohibitions' and import 'restrictions . . . whether effective through quotas, import . . . licences or other measures'. Limiting the quantity of foreign RECs eligible for tax exemptions by imposing a certain fixed threshold could be found to be a measure constituting a 'restriction . . . on importation' of green electricity. WTO jurisprudence has consistently interpreted Article XI:1 GATT in a broad manner,

⁸⁵ For instance, the price for GOs in the EU is presently four times lower than the price for GOs in Switzerland.

considering not only measures which may formally be considered quantitative restrictions (e.g. quotas), but also other measures constraining trade through reductions in the volume of imports (or exports), to fall within its scope of application. In *India – Autos*, the panel suggested that the term 'restrictions' includes all measures imposing a condition with a limiting effect.⁸⁶ In *Colombia – Ports of Entry*, the panel found that Article XI:1 would also cover 'measures which create uncertainties and affect investment plans, restrict market access for imports or make importation prohibitively costly'.⁸⁷ In *China – Raw Materials*, the panel further added that any measure with 'the very potential to limit trade . . . constitute[s] a "restriction" within the meaning of Article XI:1 of the GATT 1994'.⁸⁸ Based on WTO case law, a quota on the number of foreign RECs eligible for tax exemptions is likely to be viewed as a measure having a limiting effect on importation within the meaning of GATT Article XI:1. This is because it would create uncertainty regarding foreign RECs' eligibility for the purposes of tax exemptions, while domestically produced electricity accompanied by domestic RECs would automatically be granted the exemption. Such a scenario would negatively affect the competitive opportunities of foreign green electricity compared to domestic green electricity.⁸⁹

Furthermore, GATT Article XI:1 is not the only provision that may be relevant for the purpose of assessing the legal feasibility of quantitative limitations on foreign RECs eligible for tax exemptions. A violation of the NT rule under GATT Article III:4 may also arise to the extent that more favourable treatment would be granted to electricity suppliers submitting RECs of domestic origin, thus associated with green electricity produced

⁸⁶ Panel Report, *India – Measures Affecting the Automotive Sector*, circulated on 21 December 2001, WT/DS/146/R and WT/DS/175/R, para. 1.14.

⁸⁷ Panel Report, *Colombia – Indicative Prices and Restrictions on Ports of Entry*, adopted on 20 May 2009, WT/DS366/R, para. 7.240.

⁸⁸ Panel Report, *China – Measures Related to the Exportation of Various Raw Materials*, adopted on 22 February 2012, WT/DS394/R, WT/DS395/R and WT/DS398/R, para. 7.1081.

⁸⁹ This conclusion is supported by *Colombia – Ports of Entry*, where the Panel opined that the limiting effect on importation would not have to be proved based on the trade impacts of a measure so long as 'changes in trade volumes result not only from governmental policies, but also from other factors, and that, in most circumstances, it is not possible to determine whether a decline in imports following a change in policies is attributable to that change or to other factors'. Panel Report, *Colombia – Ports of Entry*, ft. 35, para. 7.254. Thus, there is no need to quantify the impact determined by the preference of domestic over foreign RE GOs on the volume of green electricity imports for the purpose of proving the violation of Article GATT XI:1.

domestically, rather than foreign RECs obtained from importing green electricity. This would modify the conditions of competition between imported and domestic green electricity in the country imposing the electricity tax, to the detriment of the importer.⁹⁰

Moreover, designing an electricity tax scheme in such a way that the tax exemptions would be fully available to domestic green electricity upon submission of domestic RECs, while not granting them to imported green electricity accompanied by foreign RECs exceeding the quota, would likely reduce the chances of successfully defending the whole tax scheme under GATT Article XX. As already discussed, recourse to the GATT exceptions may be needed to justify the PPM nature of an electricity tax or the possible discriminatory effects on foreign green electricity compared to domestic green electricity. As a quota imposed on foreign RECs for the purposes of tax exemptions would ultimately discourage green electricity imports while stimulating the production of green electricity in the country imposing a tax, the question is whether the preference for domestic over foreign green electricity could be considered impartial. Pursuant to the chapeau of Article XX, a measure shall not be 'a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade'. The country imposing an electricity tax with such requirements would need to prove that the 'conditions' prevailing domestically, on the one hand, and in the country from which green electricity is imported, on the other, are 'relevantly different'.⁹¹ It seems unlikely that the importing country could rely on the existence of the tax scheme to argue that the domestic conditions are different from those prevailing in the exporting country. As mentioned above, because the quota on foreign RECs would result in discrimination between countries with the same conditions, the reasons for such discrimination should be related to the objective under

⁹⁰ A detailed analysis of the case law interpreting Article III:4 GATT and a thorough explanation of its applicability to a quantitative limitation imposed on GOs for the purposes of tax exemptions was provided in T. Cottier, I. Espa, S. Hirsbrunner, K. Holzer and T. Payosova, *Differential Taxation of Electricity: Assessing the Compatibility with WTO Law, EU Law and the Swiss-EEC Free Trade Agreement*, legal opinion commissioned by the Swiss Federal Finance Administration, the Swiss Federal Office of Energy and the Swiss State Secretariat for Economic Affairs (2014), www.cfv.admin.ch/e/downloads/finanzpolitik_grundlagen/els/Differential%20_Taxation_e.pdf?lang=de&msgid=50122 (accessed 10 January 2016), p. 55.

⁹¹ AB Report, *EC – Seal Products*, para. 5.299.

Article XX (g) or (b).⁹² However, the reasons for discriminating against imported green electricity and in favour of domestic green electricity do not seem to relate directly to public health or environmental protection considerations, as these goals would be promoted just as effectively by measures incentivising the consumption of green electricity irrespective of its origin. For all these reasons, a quota put on foreign RECs eligible for tax exemptions would likely run afoul of GATT provisions.

Finally, restricting the availability of tax exemptions by having a quota for foreign green utilities may raise questions as to whether such a tax scheme could constitute a prohibited import substitution subsidy within the meaning of ASCM Article 3. In such a case no determination of adverse effect will be required.⁹³

II A Differentiated Electricity Tax with Qualitative Restrictions on the Acceptability of Certificates

One could also envisage limiting the admissibility of RECs for tax exemptions based on certain qualitative criteria. The admissibility of RECs could, for instance, be conditioned on their actual attachment to the physical flows of electricity. This requirement seems to reflect the environmental goal of stimulating the use of electricity from renewable sources in the importing country better than the quantitative restrictions on RECs. This is because, from an environmental perspective, it is irrelevant whether the increase in the production of green electricity occurs in the territory of the importing country or elsewhere, owing to the global nature of climate change. Furthermore, it is an objective criterion that allows RECs to be used as a tool to extend a domestic tax to imports, while still treating domestic and foreign green electricity alike. Under this scenario, exclusion from tax exemptions would only happen with regard to certificates not linked to the importation of green electricity, while imports of green electricity would be treated the same as domestic green electricity. For this reason, this design option does not seem to entail any violations of relevant WTO provisions. Moreover, because such a criterion would be equally applicable to domestic and foreign RECs accompanying green electricity flows in a way similar to labels, no additional legal hurdles would arise out of the obligations under the Technical Barriers to Trade (TBT) Agreement.

⁹² AB Report, *Brazil-Retreaded Tyres*, para. 227.

⁹³ Article 3.2 of the ASCM.

Another qualitative criterion for the acceptability of RECs could consist in granting the tax exemptions upon the submission of RECs (e.g. GOs) coming from electricity installations that meet the requirements for green electricity labels, such as 'naturemade' labels issued in Switzerland. The idea behind this option is to restrict the availability of tax exemptions not simply to green electricity as such (i.e. CO₂-free electricity generated from renewable sources), but more specifically to green electricity produced in an ecologically sustainable manner.⁹⁴ This option could be implemented through GOs, as GOs contain information on 'the identity, location, type and capacity of the installation where green electricity was produced'.⁹⁵ Although in principle this criterion would be applicable to both domestic and foreign GOs, the choice of a national quality label such as 'naturemade' would likely entail *de facto* discrimination against imported green electricity. This is because national labels are not diffused in other countries. This means that GOs qualifying for tax exemptions will almost exclusively be those of domestic origin, whereas foreign GOs would rarely qualify for tax exemptions. Limiting the admissibility of GOs for the tax exemptions to those that correspond to a national electricity label has implications for trade in electricity similar to those arising out of the introduction of a formal quota of foreign RECs eligible for tax exemptions. Domestic GOs originating from certified installations would in fact be preferred over foreign GOs, even if the latter come from installations certified under another green electricity label based on ecological requirements similar to those assessed under the national label. The introduction of such a qualitative criterion is thus likely to entail a violation of Article III:4 and Article XI:1 GATT, while posing problems for justification under the relevant environmental exceptions available under the GATT. In order to avoid *de facto* discrimination against imported green electricity, a tax exemption scheme should thus be based on a label that is equally available to domestic and foreign suppliers of renewable electricity.

Qualitative restrictions on certificates' acceptability for the purposes of tax exemption would potentially entail a violation of WTO subsidies disciplines only if there were adverse effects as referred to above.

⁹⁴ Green electricity labels take into account a wider range of requirements concerning ecological, social, organisational and professional factors. See *Naturemade Swiss Quality Label: A Top Global Brand*, available at www.naturemade.ch/Dokumente/Kommunikation/PWC-Report-kurz-e.pdf (accessed 10 January 2016).

⁹⁵ See Article 15(6)(c) of Directive 2009/28/EC.

III A Tax Based on the CO₂ Footprint of Electricity

Instead of taxing electricity at different rates depending on the energy source used for its generation, policy-makers may consider taxing electricity at rates determined on the basis of its CO₂ footprint. A domestic CO₂ levy could then be extended to imported electricity as a border tax adjustment (BTA) measure.⁹⁶ WTO law issues arising out of a CO₂ levy on electricity are basically similar to those arising out of an electricity tax based on the sources of electricity. Similarly to the case of a tax levied on the sources of electricity, issues of inconsistency with the MFN and NT rules under the GATT might arise owing to the PPM nature of the levy, and thus recourse to Article XX GATT to defend the measure would probably be needed.⁹⁷ Moreover, to avoid a violation of non-discrimination rules, a CO₂ levy adjusted at the border must be levied on domestic power plants without exemptions. It should also be noted that a levy based on the CO₂ footprint of electricity cannot be imposed on carbon-neutral nuclear electricity.

Compared to a tax based on the source of electricity, it would currently be more difficult to impose a CO₂ levy in light of the practical issues related to the administration of the tax, including tracing electricity's carbon footprint and determining tax rates for imported electricity, the carbon footprint of which cannot be verified. The use of available RECs (e.g. GOs or green certificates) for the implementation of a CO₂ levy would only allow for tracing renewable sources of electricity. It would not provide the information on the CO₂ footprint of imported electricity on which a CO₂ levy would need to be based. Given this deficiency in existing electricity certification schemes, CO₂ levy rates for imported electricity cannot rely on the actual carbon footprint of imported electricity and need to be based on a benchmark level of emissions, that is, a 'constructed' carbon footprint of electricity.

Pursuant to the rules on the application of BTAs, a CO₂ levy applied to imported electricity should correspond to the same levy imposed on domestic electricity not only in terms of the tax burden but also in terms of the manner in which it is applied. Consequently, if a CO₂ levy on imported electricity is based on the average footprint of carbon emissions, domestic electricity should also be taxed on the basis of the average

⁹⁶ Ecoplan et al., *Border Tax Adjustments*, p. 84.

⁹⁷ For a comprehensive study on WTO compliance of border carbon adjustments, see Holzer, *Carbon-related Border Adjustment and WTO Law*.

CO₂ footprint. Different approaches taken with respect to the determination of electricity tax rates for domestic and imported electricity were found unacceptable in the *Outokumpu Oy* dispute settled by the European Court of Justice (ECJ).⁹⁸ While applying tax rates to domestic electricity that varied on the basis of electricity-generation methods, Finland applied to imported electricity a flat rate corresponding to the average rate. The ECJ concluded that the rules of the European Community precluded the imposition of a tax based on the application of different criteria for the calculation of the tax with regard to domestic and imported products.⁹⁹

IV Tax Revenue Recycling Issues

The way in which tax revenues are used or recycled might also be a factor influencing the compliance of a differentiated electricity tax with WTO law. When examining a tax revenue recycling scheme's compliance with the law of the WTO, legal analysis focuses on whether a particular mode of allocation of the tax revenues subsidises national producers or consumers. To constitute an actionable subsidy, that is, a subsidy that can be challenged through the WTO dispute settlement procedures or counteracted by trading partners through countervailing import duties, a tax recycling system must fall under the WTO definition of a 'subsidy', be 'specific' and cause adverse effects within the meaning of the ASCM. To qualify as a subsidy, according to Article 1 ASCM, a measure must constitute a financial contribution by a government and confer a benefit. Tax revenue recycling can be a governmental financial contribution if tax rebates are forgone budget revenues or a direct transfer of funds. This would depend on the design of the tax rebate system. Yet, it does not seem to be reasonable to consider that electricity tax revenue allocation constitutes forgone government revenues in the situation where the 'normal' state of play in a country is not to tax grey electricity or carbon at all. It is more logical to consider tax rebates to be a redistribution of funds between private entities.¹⁰⁰ For similar reasons, it would be difficult to argue that rebates of such costs confer a benefit to the firms.¹⁰¹ Instead

⁹⁸ Case C-213/96, *Outokumpu Oy* [1998] ECR I-1777, para 34. ⁹⁹ *Ibid.*

¹⁰⁰ N. Shariff, 'Enhancing competitiveness and addressing carbon leakage: a value added based approach to emissions pricing system design', master's thesis, University of Bern (2012), p. 48.

¹⁰¹ *Ibid.*

of being viewed as a subsidy, '[i]n a country where the status quo is not to tax emissions at all ... the institution of a charge and rebate system should constitute ... a means of taxation that limits the cost impacts of the measure on its industry'.¹⁰² And even if the tax revenue rebates to domestic electricity companies were found to constitute a subsidy, there is practically no way that this subsidy, that is, a specific subsidy causing adverse effects for the foreign electricity industry, would be considered actionable, especially in a situation in which foreign electricity producers bear no fossil fuel or carbon-related environmental costs. In light of all the foregoing, it is unlikely that electricity tax or CO₂ levy rebates would raise serious issues under WTO subsidy rules.

Nevertheless, when designing an electricity tax revenue recycling system, certain elements should be included to ensure its compliance with WTO law. First, the system should be administered in such a way as to demonstrate a clear connection between the tax and the rebate. This means that the tax is not deposited in the budget account but rather is clearly redistributed, with only a small portion being used to fund the administration of the tax system.¹⁰³ Second, the system should apply to all electricity installations so that they will automatically be subject to the tax and entitled to receive the rebate (or exemption). Third, tax revenues used even partially to support environmental and climate change mitigation and adaptation programmes may serve as evidence of the environmental rationale of the tax and an important indicator of its neutrality. By contrast, using revenues from a tax on imported electricity solely to support the development of domestic industries may impair justification of the tax under the environmental exceptions. Finally, it is important to note that WTO law does not prohibit the redistribution of tax revenues through a national tax reform. A government may, for instance, decide to use revenues from an electricity tax to lower corporate and income taxes.¹⁰⁴

¹⁰² *Ibid.* ¹⁰³ *Ibid.*, p. 50.

¹⁰⁴ In this respect, it is noteworthy that revenues from the UK Climate Change Levy are largely recycled back into industry through a 0.3 per cent reduction of the employer payment to national insurance contributions. Part of the revenues is further diverted to the Carbon Trust, an institution which fosters research and promotion of energy efficiency and renewable energy sources. R. Martin, U. J. Wagner and L. B. de Preux, 'The impacts of the Climate Change Levy on business: evidence from microdata', *Centre for Climate Change Economics and Policy Working Paper No. 7* (2009), [http://eprints.lse.ac.uk/37676/1/The_impacts_of_climate_change_levy_on_business_evidence_from_microdata\(lsero\).pdf](http://eprints.lse.ac.uk/37676/1/The_impacts_of_climate_change_levy_on_business_evidence_from_microdata(lsero).pdf) (accessed 20 November 2016).

E Conclusions

An electricity tax with different tax rates applied to different types of imported electricity against submission of RECs can be compliant with GATT rules, provided a number of requirements are met. Domestic and imported electricity of a particular type must be taxed equally and differences in taxation between electricity of different types must not exceed what is needed for the achievement of environmental or public health policy objectives. The compatibility of a differentiated electricity tax with WTO subsidies disciplines will depend to a large extent on its specific modalities, and primarily on the existence of adverse effects. The probability of such adverse effects in the current electricity market conditions remains low, but cannot be fully disregarded.

Introducing additional requirements and constraints for imported green electricity eligible for tax exemptions could, however, raise complications for the compliance of a differentiated electricity tax with WTO law. Limiting the number of foreign certificates eligible for tax exemptions would be likely to affect the volumes of green electricity imported, and thus trigger a violation of the NT obligation and potentially amount to an import substitution subsidy. However, restrictions on the eligibility of RECs might be defended under WTO law if they are based on qualitative criteria, such as the attachment of RECs to green electricity flows or to a green electricity label that is equally available to domestic and foreign suppliers of green electricity.

A differentiated electricity tax could also be based on the CO₂ footprint of electricity. A CO₂ levy on imported electricity may pass the test of compliance with WTO law if framed as an extension of a CO₂ levy on domestic electricity within the meaning of a non-discriminatory border tax adjustment scheme. A CO₂ levy on imported electricity will be consistent with WTO law only when the same levy is imposed without exemptions on domestic power plants. A CO₂ levy applied to imported electricity should correspond to the CO₂ levy imposed on domestic electricity not only in terms of the tax burden but also in terms of the manner in which it applies.

Assessing an electricity tax revenue recycling system's compliance with WTO law is not straightforward. However, the preliminary legal analysis shows that a partial redistribution of the electricity tax or CO₂ levy back to the industry would be unlikely to raise serious issues under WTO subsidy rules. To improve a tax recycling scheme's WTO compliance, tax revenues should, at least partially, be used to fund environmental and

climate change mitigation and adaptation programmes. This would serve as evidence of the environmental rationale of the tax and an important indicator of its neutrality. Moreover, WTO law does not prohibit redistributing tax revenues through a national tax reform resulting in a decrease in other taxes.

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